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EXAMINER

AUGHENBAUGH, WALTER

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte SANGKEUN RHEE, ERIC J. RAINAL,
and MICHAEL P. DELLA VECCHIA

Appeal 2008-0631
Application 10/783,357
Technology Center 1700

Decided: February 26, 2008

Before FRED E. MCKELVEY *Senior Administrative Patent Judge*,
MICHAEL P. TIERNEY and JAMES T. MOORE, *Administrative Patent
Judges*.

MOORE, *Administrative Patent Judge*.

DECISION ON APPEAL

1

2

STATEMENT OF CASE

3 The Appellants appeal under 35 U.S.C. § 134 (2002) from a final
4rejection of claims 1-29 and 40-43.¹ We have jurisdiction under 35 U.S.C.
5§ 6(b) (2002).

¹ Claims 30-39 have been canceled, and claims 44-49 have been withdrawn.

1 The Appellants' claims are directed to multilayer sheets and films
2composed of a fluoropolymer layer, an adhesive tie layer and a
3thermoplastic polymer layer.

4 Claims 1 and 40 are the only independent claims in the application.
5The Appellants argue the rejection of claims 1-28 and 40-42 together.
6Therefore, we select independent claim 1 to decide the appeal regarding this
7rejection. 37 C.F.R. § 41.37 (c)(1)(vii)(2006). Accordingly, the remaining
8claims subject to this rejection stand or fall with claim 1.

9 The Appellants also argue the rejection for dependent claims 29 and
1043 together. We select dependent claim 29 to further decide the appeal
11regarding this rejection, and claim 43 stands or falls with claim 29.

12 Claim 1 reads as follows:

- 13 1. A multilayered film comprising:
14 a) a fluoropolymer layer having first and second surfaces;
15 b) an adhesive tie layer, having first and second surfaces, on the
16 fluoropolymer layer with the first surface of the adhesive tie
17 layer on the first surface of the fluoropolymer layer; which
18 adhesive tie layer comprises a combination of at least one
19 tackifier and at least one ethylene/alpha-olefin copolymer; and
20 c) a thermoplastic polymer layer, having first and second
21 surfaces, on the adhesive tie layer with the first surface of the
22 thermoplastic polymer layer on the second surface of the
23 adhesive tie layer.

24
25 Claim 29 reads as follows:

- 26
27 29. A tube formed from the multilayered film of claim 1.
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1 THE EVIDENCE

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3 The Examiner relies upon the following as evidence in support of the
4rejections:

5	Urawa	US 4,751,270	Jun. 14, 1988
6	Tsai	US 2003/0008152 A1	Jan. 09, 2003
7	Kawachi	US 6,656,601 B1	Dec. 02, 2003
8	Jing	US 6,849,314 B2	Feb. 01, 2005

9

10 THE REJECTIONS

11

12 The following rejections are before us for review:

131. Claims 1-28 and 40-42 stand rejected under 35 U.S.C. § 103(a) over
14the combination of Tsai (US Patent Application 2003/0008152), Kawachi
15(US Patent 6,656,601), and Urawa (US Patent 4,751,270).

162. Claims 29 and 43 stand rejected under 35 U.S.C. § 103(a) (2004) over
17the combination of Tsai, Kawachi, and Jing (US Patent 6,849,314).

18 We AFFIRM.

19

ISSUE

20 Have the Appellants established that the Examiner erred in
21determining that it would have been obvious to one of ordinary skill in the
22art at the time the invention was made to combine the claimed elements, all
23of which are known in the prior art and are being used for their known
24functions?

25

FINDINGS OF FACT

26 The record supports the following findings of fact by a preponderance
27of the evidence.

28 1. Tsai is directed to multilayer films that have a high moisture
29barrier and are substantially transparent. (Tsai p. 1, para. 0002).

1 2. Tsai describes that it is well known in the art to produce multilayer
2fluoropolymer films. (p. 1, para. 0004).

3 3. Tsai describes a multilayer film that comprises a fluoropolymer
4layer and a cyclic olefin copolymer layer, i.e., a thermoplastic polymer layer,
5attached by an adhesive tie layer. (p. 1, para. 0008, 0013).

6 4. Tsai describes that suitable adhesive polymers for the adhesive tie
7layer include the modified polyolefin compositions described in Urawa. (p.
82, para. 0015).

9 5. Urawa describes that copolymers of alpha-olefin, such as ethylene,
10are useful for the preparation of its modified polyolefin compositions.
11(3:44-47).

12 6. Tsai differs from the claimed invention because Tsai does not
13describe that the adhesive tie layer comprises a tackifier.

14 7. Kawachi describes an adhesive ethylene copolymer composition
15comprising an ethylene/alpha-olefin copolymer and a tackifier. (3:1-18).

16 8. An object of Kawachi is to increase the adhesive strength of
17adhesive ethylene copolymer compositions. (2:55-60).

18 9. Kawachi describes that an adhesive composition containing a
19tackifier provides a layer having good adhesive force. (Abstract).

20 10. Kawachi describes that the tackifier is a solid amorphous polymer
21useful in the field of adhesives. (18:59-61).

22 11. Kawachi describes that the preferred tackifiers have good
23dispersability in the ethylene/alpha-olefin copolymers. (19:24-29).

24 12. Jing describes processes for preparing multilayer articles
25featuring a fluoropolymer blend layer into tubing. (1:1-10; 9:28-36).

1 13. Jing describes that the articles of the invention have excellent
2interlayer adhesion and these multilayer articles remain transparent. (3:49-
351).

4 PRINCIPLES OF LAW

5 “Section 103 forbids issuance of a patent when ‘the differences
6between the subject matter sought to be patented and the prior art are such
7that the subject matter as a whole would have been obvious at the time the
8invention was made to a person having ordinary skill in the art to which said
9subject matter pertains.’” *KSR International Co. v. Teleflex Inc.*, 127 S. Ct.
101727, 1734 (2007).

11 “If a person of ordinary skill can implement a predictable variation,
12§ 103 likely bars its patentability.” *Id.* at 1740.

13 ANALYSIS

14 I. The Rejection of Claims 1-28 and 40-42 under 35 U.S.C.
15§ 103(a) over Tsai, Kawachi, and Urawa.

16 Claims 1-28 and 40-42 stand rejected under 35 U.S.C. § 103(a) over
17Tsai, Kawachi, and Urawa. The Examiner found that Tsai describes a
18multilayer film comprising a fluoropolymer layer and a thermoplastic layer
19attached by an adhesive tie layer. (Non-Final Rejection, Apr. 6, 2006, p. 4).
20Tsai describes that the adhesive tie layer is made of an ethylene/alpha-olefin
21copolymer evidenced by Urawa that is referenced in Tsai. (*Id.*). However,
22the Examiner determined that Tsai does not teach that the adhesive tie layer
23comprises a tackifier. (*Id.*).

24 The Examiner found that Kawachi describes an adhesive composition
25of ethylene/alpha-olefin copolymer containing a tackifier. (Non-Final
26Rejection, Apr. 6, 2006, p. 4.). The Examiner determined that the purpose

1of the Kawachi invention was to obtain an adhesive composition having
2high adhesive force between polymers. (*Id.* 4-5).

3 The Examiner then concluded that it would have been obvious to one
4of ordinary skill in the art at the time the invention was made to use
5Kawachi's adhesive composition comprising a tackifier and an
6ethylene/alpha-olefin copolymer as an adhesive tie layer in Tsai's multilayer
7film to obtain a film with increased adhesive strength between the
8fluoropolymer layer and thermoplastic layer. (Non-Final Rejection, Apr. 6,
92006, p. 5).

10 The Appellants assert that the Examiner "improperly combined the
11references" to reject claims 1-28 and 40-42 as being obvious. (App. Br. 7).
12Specifically, the Appellants argue that "there is no teaching or suggestion in
13either reference to combine the multilayer films disclosed by Tsai et al. with
14the adhesive compositions described by Kawachi et al." (*Id.*; Reply Br. 2).
15The Appellants further assert that Kawachi does not teach that its adhesive
16compositions would be compatible with fluoropolymers nor that the
17compositions would be sufficient to adhere fluoropolymer layers with other
18polymeric layers. (App. Br. 7).

19 This argument is not persuasive. A reason to combine teachings
20need not be expressly stated in any prior art reference. *In re Kahn*, 441 F.3d
21977, 989 (Fed. Cir. 2006). There need only be an articulated reasoning with
22rational underpinnings to support a reason to combine teachings. *Kahn*, 441
23F.3d at 988. Here, the Examiner explained that the combination of Tsai with
24Kawachi was suggested by the references and the knowledge of one with
25ordinary skill in the art who reviewed the references.

1 Specifically, the Examiner found that Tsai describes a multilayer film
2having a fluoropolymer layer, an adhesive tie layer, and a thermoplastic
3polymer layer. Tsai expressly describes that the adhesive tie layer may be
4comprised of the adhesive compositions described in Urawa. The Examiner
5also found that Urawa describes adhesive compositions comprising an
6ethylene/alpha-olefin copolymer.

7 Turning to Kawachi, the Examiner found that it also describes
8adhesive compositions comprising an ethylene/alpha-olefin copolymer.
9However, Kawachi's composition also contains a tackifier, known in the art
10to provide good adhesive force to film layers.

11 From these facts, it is apparent that the Examiner rationally
12determined that it would have been obvious for a person skilled in the art at
13the time of the invention who reviewed Tsai, Urawa, and Kawachi to
14substitute Urawa's ethylene/alpha-olefin adhesive composition with
15Kawachi's ethylene/alpha-olefin adhesive composition containing a tackifier
16for improved adhesive force.

17 That Appellant urges that Kawachi does not expressly describe the
18compatibility or sufficiency of its composition with fluoropolymers. This (1)
19misplaces the burden of proof, (2) is contrary to the weight of the evidence
20of record, and (3) does not render the suggested combination nonobvious.

21 In rebutting the case of obviousness, the Applicant/Appellant may
22come forth with persuasive evidence or argument that the combination is
23improper, for reasons which may include "compatibility" or operativeness of
24the combination. It is not the burden of the Examiner to establish
25compatibility. We note that the Appellant has pointed to a mention in Jing
26(6,849,314; 1:29-31) that "... fluoropolymers are known to be difficult to

1bond.” Such a passing mention is insufficient to overcome the clear
2preference of the combination of prior art.

3 For example, Tsai and Urawa provide clear teachings that
4ethylene/alpha-olefin adhesive compositions are compatible with
5fluoropolymers. Additionally, Kawachi describes that its tackifier is a
6polymer that has good dispersability in the ethylene/alpha-olefin
7copolymers. The Appellant has not sufficiently rebutted this evidence that it
8would be within the understanding of one ordinarily skilled in the art that
9compatibility/sufficiency teachings of Tsai and Urawa also apply to the
10ethylene/alpha-olefin adhesive composition of Kawachi.

11 The Appellants next argue that the Examiner “has applied an
12impermissible ‘obvious to try’ standard of patentability” by stating in the
13Final Rejection that “[i]t is not unreasonable for one of ordinary skill to try a
14polymer adhesive with all types of polymers, whether specifically mentioned
15or not.” (App. Br. 7-8, quoting Final Rejection, Jul. 7, 2006, 3; Reply Br. 4).
16The Appellants assert that the Examiner’s statement represents the kind of
17error where,

18 what would have been ‘obvious to try’ would have been to vary
19 all parameters or try each of numerous possible choices until
20 one possibly arrived at a successful result, where the prior art
21 gave either no indication of which parameters were critical or
22 no direction as to which of many possible choices is likely to be
23 successful.

24
25(App. Br. 7)(quoting *In re O’Farrell*, 853 F.2d 894, 903 (Fed. Cir. 1988)).

26 This argument is without merit. The Appellants mischaracterize the
27basis of the Examiner’s obviousness rejection by referencing a response
28offered during the prosecution of their application. A close review of the

1specifically recited grounds of the Examiner's rejection reveals that the
2Examiner does not rely on an "obvious to try" rationale in determining that
3the claimed invention is obvious. (See Non-Final Rejection, Apr. 6, 2006,
4pp. 4-5; see also Ans. 9).

5 Rather, the Examiner based the rejection upon the fact that Kawachi
6teaches that a tackifier is a well known adhesion additive to ethylene/alpha-
7olefin adhesive polymers, making it obvious to one of ordinary skill in the
8art at the time of the invention to add a tackifier to the ethylene/alpha-olefin
9adhesive polymer described by Tsai. (See Non-Final Rejection, Apr. 6,
102006, 4-5; see also Ans. 9). Therefore, the Examiner's rejection did not rely
11upon a skilled artisan arriving at the claimed invention by "vary[ing] all
12parameters" of the prior art or "try[ing] each of numerous possible choices"
13without direction.

14 Of note, we observe that the Appellants have not shown that the
15addition of a tackifier in such an adhesive was not well known in the art.

16 In this same vein, the Appellants further assert that the applied
17references do not provide one of ordinary skill a reasonable expectation of
18success in achieving the claimed invention as "there is difficult[y] in
19successfully bonding fluoropolymer layers to non-fluoropolymer film
20layers." (App. Br. 8).

21 This argument is also without merit. Again, the Appellants
22incorrectly assume that the Examiner relied on an "obvious to try" rationale
23for rejecting the claims. Further, Tsai overcame any "difficult[y] in
24successfully bonding fluoropolymer layers to non-fluoropolymer film
25layers" by applying an adhesive tie layer comprised of an ethylene/alpha-
26olefin adhesive polymer. Arriving at the claimed invention, as discussed

1supra, involved only the obvious step of adding a tackifier to the Tsai's
2adhesive polymer. One ordinarily skilled in the art at the time of the
3invention who reviewed Kawachi knew that a tackifier provides a layer
4having good adhesive force and that preferred tackifiers have good
5dispersability in the ethylene/alpha-olefin copolymers. (Kawachi Abstract,
619:24-29). This teaching, along with that of Tsai and Urawa provide a
7reasonable expectation of success.

8 Consequently, we do not find error with the Examiner's rejection of
9claims 1-28 and 40-42 as being obvious over the combination of Tsai,
10Urawa, and Kawachi.

11 II. The Rejection of Claims 29 and 43 under 35 U.S.C. § 103(a)
12over Tsai, Kawachi, and Jing.

13 Claims 29 and 43 stand rejected under 35 U.S.C. § 103(a) over
14Tsai, Kawachi, and Jing. The representative claim, dependent claim
1529, reads: "A tube formed from the multilayered film of claim 1."

16 As described in the rejection of claims 1-28 and 40-42, the Examiner
17found that the combination of Tsai and Kawachi teach the limitations of
18independent claim 1. (Non-Final Rejection, Apr. 6, 2006, p. 6). The
19Examiner determined that Tsai and Kawachi do not describe forming the
20multilayer film into a tube. (*Id.*). However, the Examiner determined that
21Jing describes that it is well known in the art to form films containing
22fluoropolymer layers into tubes to provide articles with chemical resistance
23and low fuel permeation. (*Id.*). Therefore, the Examiner concluded that it
24would have been obvious to one of ordinary skill in the art at the time the
25invention was made to form the multilayer article of Tsai and Kawachi into a

1tube as described by Jing because it was well known in the art that such a
2tube provides chemical resistance and low fuel permeation. (*Id.* at 7).

3 The Appellants argue that the Examiner erred in rejecting claims 29
4and 43 for the same reasons advanced for the rejections of 1-28 and 40-42
5and assert that Jing “fails to overcome the differences between Tsai et al.
6and Kawachi et al. and the claimed invention.” (App. Br. 9). Specifically,
7the Appellants assert that Jing does not teach a “multilayer film comprising a
8fluoropolymer layer being attached to a non-fluoropolymer layer via a non-
9fluoropolymer containing adhesive tie layer,” and does not teach a “tie layer
10including an ethylene/ α -olefin copolymer and a tackifier.” (App. Br. 9).

11 This argument is unpersuasive for the same reasons discussed
12regarding the rejections of claims 1-28 and 40-42. Moreover, the
13obviousness rejection of claims 29 and 43 cannot be overcome by attacking
14Jing individually where the rejection is based upon the teachings of a
15combination of references. *See In re Merck & Co. Inc.*, 800 F.2d 1091, 1097
16(Fed. Cir. 1986). It is the cited combination of Tsai, Kawachi, and Jing
17which discloses all of the limitations of dependent claim 29. The Examiner
18has only relied upon Jing to demonstrate that it is well known in the art to
19form films containing fluoropolymer layers into tubes.

20 Finally, we are also unpersuaded insofar as the Appellants argues that
21the cited references do not provide any suggestion to combine the multilayer
22film of Tsai and Kawachi with the tube of Jing, or that such combination
23results from “reconstructing the art in light of the Appellants’ disclosure.”
24(App. Br. 9-10).

25 We have previously discussed that the Examiner’s reasoning for
26combining Tsai and Kawachi is supported by the evidence. Similarly, it

1would have been obvious to a person of ordinary skill in the art at the time
2the invention was made to combine Tsai with Jing. Tsai describes a
3multilayer film comprising a fluoropolymer layer and Jing describes forming
4multilayer films featuring a fluoropolymer layer into a tube. Jing also
5describes that the process of forming the film into a tube provides excellent
6interlayer adhesion and allows the multi-layer articles to remain transparent.
7Therefore, a skilled artisan would form the film of Tsai and Kawachi into
8the tube of Jing to yield a multilayer article with excellent interlayer
9adhesion and transparency.

10 Furthermore, as explained in *In re McLaughlin*, 443 F.2d 1392, 1395
11(CCPA 1971), “Any judgment on obviousness is in a sense necessarily a
12reconstruction based upon hindsight reasoning” Reconstruction is
13proper if it relies on ordinary skill at the time of the invention and not on
14knowledge gained solely from the applicant’s disclosure. *Id.*

15 Here, Jing teaches forming a multilayer film having a fluoropolymer
16layer, as in the combination of Tsai and Kawachi, into a tube. The only
17reconstruction performed relies upon an ordinary skill in the art at the time
18of the invention to combine the tackifier of Kawachi with multilayer film of
19Tsai and to then form the film into Jing’s tube. Therefore, we conclude that
20the examiner did not err in determining that it would have been obvious to
21one of ordinary skill in the art at the time of the invention to combine the
22references to arrive at the claimed invention. Such a conclusion is not the
23result of inappropriate hindsight.

24 Accordingly, we affirm the Examiner’s rejections.

1 CONCLUSION OF LAW

2 On the record before us, the Appellants have not shown error on the
3part of the Examiner. It would have been obvious to one of ordinary skill in
4the art at the time the invention was made to combine the known elements of
5the prior art for their known functions.

6 DECISION

7 The Rejection of claims 1-28 and 40-42 under 35 U.S.C. § 103(a) as
8being unpatentable over Tsai, Kawachi, and Urawa is AFFIRMED.

9 The Rejection of claim 29 and 43 under 35 U.S.C. § 103(a) as being
10unpatentable over Tsai, Kawachi, and Jing is AFFIRMED.

11 No time period for taking any subsequent action in connection with
12this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv) (2006).

13

14 AFFIRMED

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